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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,676	01/15/2004	Kenny Randolph Parker	80002/US02	6075

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EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/758,676

Applicant(s)

PARKER ET AL.

Examiner

Taylor Victor Oh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/06, 11/05, 1 &amp; 9/04</u> . | 6) <input type="checkbox"/> Other: _____  |

The Status of Claims

Claims 1-47 are pending.

Claims 1-47 have been rejected.

***Claim Objections***

Claims 45 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 46. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 46 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 45. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 45 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 47. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 47 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 45. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 46 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 47. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 47 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 46. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7,12,16,21,27,32,38, and 44 are rejected under 35 U.S.C. 112, first paragraph, because according to the specification, while being enabling for a catalyst, such as cobalt, manganese, bromine compounds, does not reasonably provide enablement for all the oxidation catalyst components in the field of chemistry. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to all the catalysts unrelated to the current invention commensurate in scope with these claims.

Furthermore, the instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without **undue experimentation**. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation, citing *Ex Parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

- 1) the quantity of experimentation necessary,
- 2) the amount of direction or guidance provided,
- 3) the presence or absence of working examples,
- 4) the nature of the invention,
- 5) the state of the prior art,
- 6) the relative skill of those in the art,
- 7) the predictability of the art, and
- 8) the breadth of the claims.

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In the instant case, the claim encompasses various catalysts. However, applicants' specification provide only one Co, Mn, Br catalyst system in two examples.

Furthermore, the catalyst compositions represent an unpredictable aspect in the art of organic chemistry . See *Exparte Sizto*, 9 USPQ2d 2081 (Bd. Of App. And Inter. March 1988). Thus, the specification herein have failed to provide sufficient working examples to support the use of various catalysts. Therefore, an appropriate correction is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18, 23, 28, 33, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims ,the phrase " a substantial portion " is recited. This is vague and indefinite as the specification does not elaborate what is meant by the phrase " a substantial portion " . An appropriate correction is required.

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al (U.S. 4,158,738) in view of Gee et al (U.S. 5,200,557).

Scott et al teaches a process of producing terephthalic acid by oxidation of para xylene in the following steps of :

- a. feeding a mixture of p-xylene, a lower monocarboxylic acid solvent, and water in the presence of cobalt and manganese, and bromine into an oxidation reactor at  $210^{\circ}\text{C}$  (see col . 2 ,lines 42-56) in the presence of oxygen;
- b. removing the product as a slurry from the oxidizer;
- c. feeding the slurry of the terephthalic acid mixture to two additional crystallizers where the product is cooled to  $105^{\circ}\text{C}$ ;
- d. purifying the slurry of the terephthalic acid by filter (see col. 8 ,line 56), centrifuges and dryers (see col .3 ,lines 39-62).

The instant invention, however, differs from Scott et al in that the multiple stage counter displacement washing with water is unspecified; the temperature condition for the centrifuge operation is also unspecified; the drying zone evaporates at least 10 % of volatiles in the wet carboxylic acid cake.

Gee et al teaches a process of producing a crude terephthalic acid by



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oxidation of para xylene or p-toluic acid in the presence of a solvent, such as acetic acid (see col. 1, lines 60-63). Furthermore, the crude terephthalic acid is treated by filtration and counter-current washing by water to prepare an aqueous slurry suitable for further purification process (see col. 1, lines 10-15).

Furthermore, when 0.133 lbs of water per lb of crude terephthalic acid are added to the process using more stages of counter-current positive displacement washing, the concentration of acetic acid in the cake is as follows:

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22,587 ppm HAc after 1 stage
4,541 ppm HAc after 2 stages
1,000 ppm HAc after 3 stages
242 ppm HAc after 4 stages
59 ppm HAc after 5 stages

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(see col. 7, lines 1-

10).

In addition, the multiple stage counter displacement washing with water to remove acetic acid from a slurry of crude terephthalic acid is conducted to a temperature of from 190 to 200 °F (see col. 12, line 5). Drying is performed by mass flow controllers using dry nitrogen (see col. 10, lines 7-9).

With respect to the evaporation of at least 10 % of volatiles in the wet carboxylic acid cake in the drying zone, the prior art is silent. However, the prior art does undergo the drying process of the wet carboxylic acid cake in the drying zone without disclosing the amount of the volatiles during the evaporation. Moreover, the limitation with a process with respect to pH and time, and concentration does not impart patentability to a process where such values are those which would be determined by one of ordinary

skill in the art in achieving optimum operation of the process. Concentration is well-understood by those of ordinary skill in the art to be a result-effective variable, especially when attempting to control selectivity of chemical process. Therefore, it would have been obvious to the skilled artisan in the art to have motivated to optimize the reaction process by upgrading the centrifuge with the specific types. This is because the skilled artisan in the art would expect the reaction process to be facilitated by employing such centrifuges.

Scott et al does teach the process of producing terephthalic acid by oxidation of para xylene in the reactor in the presence of acetic acid solvent containing cobalt and manganese, and bromine and further purifying the resultant slurry of the terephthalic acid by a filtration or centrifuge, and a drying process. Also, Gee et al expressly teaches that the crude terephthalic acid obtained from the oxidation of para xylene can be treated by filtration and counter-current washing by water to prepare an aqueous slurry suitable for further purification process (see col. 1, lines 10-15).

Both processes have commonly involved in the purification of terephthalic acid by centrifuging, and drying processes. Scott et al expressly describes the use of the centrifuge in the process of isolating terephthalic acid, whereas Gee et al has focused the operation of the centrifuge in conjunction with counter-current washing by water in order to isolate the relatively pure terephthalic acid. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to incorporate Gee's et al teaching of counter-current washing by water into the Scott et al process for the

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purpose of obtaining the purified terephthalic acid acceptable for the manufacture of fibers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas McKenzie can be reached on 571-272-0670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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*Myth V. Oh*  
7/19/06